



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,231	08/02/2005	Toshiyuki Fujine	1248-0799PUS1	9924
2292 7590 06/11/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER MA, CALVIN				
ART UNIT 2629		PAPER NUMBER		
NOTIFICATION DATE 06/11/2010		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/544,231

Applicant(s)

FUJINE, TOSHIYUKI

Examiner

CALVIN C. MA

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nose (USP 7,218,305) in view of Tagawa et al. (US Patent: 6,927,766).

As to claim 6, Nose teaches discloses a liquid crystal display (44) displaying, using a liquid crystal display panel (44), and image responsive to input image data (i.e. the data from the LCD controller 42 which controls the LCD panel 44) (see Fig. 9), comprising:

a driving device (42) that drives the liquid crystal display panel in either an impulse drive mode (i.e. the dynamic mode) or a hold drive mode (i.e. the static mode) (see Fig. 10, Col. 9, Lines 13-32) (i) the impulse drive mode having an image display period for performing display of the input image data (i.e. the DATA period) and a monochrome display period (i.e. the monochrome period is BLACK period) for performing display of certain previously-specified monochrome display data, each of the display periods being performed within an input image data rewriting period, the input image data and the monochrome display data written sequentially in each of scan lines of the liquid crystal display panel and written in each pixel of the liquid crystal display

panel (i.e. during the dynamic mode both the DATA and the BLACK period is used to display a dynamic moving image to prevent movement from being dim), (ii) the holding drive mode (i.e. the static mode when the computer detect static image) performing display of the input image data for the entire rewriting period, without setting the monochrome display period, the image data written sequentially in each of scan lines of the liquid crystal display panel and written in each of the liquid crystal display panel (i.e. the static mode operation requires that the BLACK period to be removed and the working of the scanning based driving of the large scale LCD as shown in figure 9 require that each lines and pixels be sequentially written with data) (see Fig. 9, 10, Col. 9, Lines 1-47).

a switching device that switches between the modes for driving the liquid crystal display panel by the driving means (i.e. the computer 30 provides the LCD controller 42 with image discriminating data to set the correct mode of display) (see Fig. 9, Col. 8, Lines 50-63); and

a voltage varying device (50 and 46) that varies, in accordance with the input images data (D20 and D21) and according to one of the modes (i.e. static or dynamic) for driving the liquid crystal display panel, a gradation voltage applied to the liquid crystal display panel, so as to prevent changes in gamma characteristics due to differences in response speed of liquid crystal between display gradations, which differences are caused by insertion of the monochrome display data (i.e. as shown in figures 10 and 12 according to the setting of the display mode different voltage is

adopted for the display of the image) (see Fig. 10, 12, Col. 10, Lines 14-47, Col. 12, Lines 1-34).

However Nose does not explicitly teaches a gradation voltage applied to the liquid crystal display panel and corresponding to the image data so as to prevent changes in gamma characteristics; Tagawa teaches a gradation voltage applied to the liquid crystal display panel and corresponding to the image data so as to prevent changes in gamma characteristics (i.e. in figure 7a it is shown that the grey scale value is the same in the subsequent frames with the application of the driving voltages) (see Fig. 7a, Col. 4, Lines 19-33).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the exact LCD driving method of Tagawa in the overall system of Note in order to prevent blurring that lead to unclear images on the display (see Tagawa, Col. 1, Lines 22-34).

As to claim 7, Nose teaches a liquid crystal display (44) displaying, using a liquid crystal display panel (44), and image responsive to input image data (i.e. the data from the LCD controller 42 which controls the LCD panel 44) (see Fig. 9), comprising:

a driving device (42) that drivers the liquid crystal display panel in either an impulse drive mode (i.e. the dynamic mode) or a hold drive mode (i.e. the static mode) (see Fig. 10, Col. 9, Lines 13-32) (i) the impulse drive mode having an image display period for performing display of the input image data (i.e. the DATA period) and a monochrome display period (i.e. the monochrome period is BLACK period) for performing display of certain previously-specified monochrome display data, each of the

display periods being performed within an input image data rewriting period, the input image data and the monochrome display data written sequentially in each of scan lines of the liquid crystal display panel and written in each pixel of the liquid crystal display panel (i.e. during the dynamic mode both the DATA and the BLACK period is used to display a dynamic moving image to prevent movement from being dim), (ii) the holding drive mode (i.e. the static mode when the computer detect static image) performing display of the input image data for the entire rewriting period, without setting the monochrome display period, (i.e. the static mode operation requires that the BLACK period to be removed and the working of the scanning based driving of the large scale LCD as shown in figure 9 require that each lines and pixels be sequentially written with data) (see Fig. 9, 10, Col. 9, Lines 1-47).

a switching device that switches between the modes for driving the liquid crystal display panel by the driving means (i.e. the computer 30 provides the LCD controller 42 with image discriminating data to set the correct mode of display) (see Fig. 9, Col. 8, Lines 50-63); and

a voltage varying device (50 and 46) that varies, in accordance with the input images data (D20 and D21), so that a relationship between a display gradation of the image and an integral of display transmittance of the image within the input image data rewriting period, in a case where the driving device drives the liquid crystal display panel in the impulse drive mode, is equal to a relationship between the display gradation of the image and the display transmittance of the image in a case where the driving device drives the liquid crystal display panel in the hold drive mode(i.e. as shown in figures 10

and 12 the computer 30 when driving the display panel 44 maintains the image quality with or without the black display period, this means that the compensation is adjusted for to create a quality image according to the setting of the display mode different voltage is adopted for the display of the image) (see Fig. 10, 12, Col. 10, Lines 14-47, Col. 12, Lines 1-34).

However Nose does not explicitly teaches a voltage device in accordance with the input image data and according to one of the modes for driving the liquid crystal display pane, and corresponding to the image data; Tagawa teaches a voltage device in accordance with the input image data and according to one of the modes for driving the liquid crystal display pane, and corresponding to the image data; (i.e. in figure 7a it is shown that the grey scale value is the same in the subsequent frames with the application of the driving voltages with the application of the display driving circuits to simulate either the impulse or hold display based on the timing) (see Fig. 6a, 7a, Col. 4, Lines 19-33, Col. 3, Lines 23-38).

3. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nose in view of Tagawa as applied to claims 6-7 and further in view of Lisaka (US Patent 7,084,861).

As to claim 2, Nose and Tagawa teaches the liquid crystal display of claim 6, however Nose is silent about having the voltage varying device varies a reference

gradation voltage for driving the liquid crystal display panel Lisaka teaches having the voltage varying device varies a reference gradation voltage for driving the liquid crystal display panel (i.e. Lisaka teaches the variable reference voltage based on temperature change) (see Lisaka, Fig. 1, Col. 9, Lines 24-50)

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used the temperature based gradation adjustment system of Lisaka in the overall LCD panel design of Nose and Tagawa in order to improve the overall LCD picture quality since temperature sensitivity is a fundamental characteristic of liquid crystal molecule and the ability to monitor this factor can be appreciated by one of ordinary skill in the art of electronic display (see Lisaka, Col. 9, Lines 3-50).

As to claim 3, Nose teaches liquid crystal display of claim 2, further comprising: a storage section storing sets of reference gradation voltage data previously specified (i.e. the response to various display mode is stored in the computer RAM and since the operation of the display system requires the storage of reference voltage setting when considering the temperature based adjustable gradation voltage is realized, this requires that a storage of the previous setting be made) (see Nose Fig. 15, Col. 15, Lines 5-27).

As to claim 4, Nose teaches the liquid crystal device of anyone of claims 6, 2, 3, and Lisaka teaches a temperature detecting device that detects a temperature in the

liquid crystal I (see lisaka, Col. 9, Lines 3-50); therefore the combination of Nose, Tagawa and Lisaka teaches the limitation of claim 4.

As to claim 5, Nose teaches the liquid crystal display of any one of claims 6, 2, or 3, wherein the switching switches between the modes for driving the liquid crystal display panel in accordance with a user's instruction (i.e. since the drawing of figure 9 clearly shows that the computer 30 creates the input that helps discriminate the modes of dynamic and static display for the LCD panel 44, it is clear that the computer 100 is controllable by the user of the system and ultimately controls the modes switching switches for the entire system with J1 signal) (see Fig. 9, Col. 8, Lines 45-50).

Response to Arguments

4. Applicant's arguments with respect to claims 2-7 have been considered but are moot in view of the new ground(s) of rejection.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Calvin Ma

June 4, 2010

/Chanh Nguyen/

Supervisory Patent Examiner, Art Unit 2629